

# EXHIBIT 2

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN FRANCISCO

\_\_\_\_\_  
)  
ANIBAL RODRIGUEZ, et al. )  
individually and on behalf of )  
all others similarly situated,) )  
)  
Plaintiffs, )  
)  
vs. ) No. 3:20-CV-04688 RS  
)  
GOOGLE LLC, et al., )  
)  
Defendants. )  
)  
\_\_\_\_\_)

ATTORNEYS' EYES ONLY - CONFIDENTIAL  
VIDEOTAPED REMOTE DEPOSITION OF BRUCE SCHNEIER, Ph.D.  
Cambridge, Massachusetts  
Monday, July 10, 2023  
Volume I

Reported by:  
CATHERINE A. RYAN, RMR, CRR, B.S.  
CSR No. 8239  
Job No. 5980592  
  
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1 that you study user behavior related to many 11:28:13

2 different aspects of security and privacy.

3 Do you see that?

4 A I do.

5 Q When you say that you study user behavior, 11:28:21

6 how do you do that?

7 A Mostly by reading other people's studies

8 and doing synthesis. I do participate in some

9 studies, but that is not my primary area.

10 Q You said that you read other people's 11:28:37

11 studies.

12 What types of studies do you read?

13 A I think it's what said. It's -- it's user

14 behavior and human factors related to aspects of

15 security and privacy. 11:28:56

16 Q What methodology do those studies employ?

17 MR. CROSBY: Object to the form of the

18 question.

19 THE WITNESS: I don't know.

20 BY MS. AGNOLUCCI: 11:29:06

21 Q You read and synthesize studies, but you

22 don't know what methodology they use?

23 A I read and synthesize studies, but I don't

24 memorize what methodology they use.

25 Q Can you think of any examples of 11:29:22

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1 methodologies that have been used in studies that 11:29:23  
2 you've read and synthesized?

3 A User -- watching user behavior, testing  
4 users, maybe sending them emails and see if they  
5 click on phishing links; studies where we watch 11:29:37  
6 users interact with security systems and see what  
7 they do; studies on how they interpret security  
8 warning labels.

9 Those are just three examples.

10 Q Those are examples of studies conducted by 11:29:58  
11 others that you have read?

12 A Yes, although I am, right now, engaging in  
13 a study on how people are responding to phishing  
14 links written by AI, whether they respond better or  
15 worse than phishing links written by humans. 11:30:13

16 You don't want to know the answer.

17 Q And in this study, are you surveying a  
18 representative sample of users?

19 A We're serving -- we're serving [sic]  
20 Harvard -- Harvard undergraduates; so no. 11:30:32

21 Q How many people are involved in the study?

22 A It's still --

23 Q How many --

24 A -- ongoing.

25 Q -- subjects are being studied, rather? 11:30:42

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1 A It's still ongoing. 11:30:44  
2 It's in the hundreds.  
3 Q Have you engaged in any other quantitative  
4 research of user behavior yourself?  
5 A No. 11:31:02  
6 Q Have you engaged, yourself, in any  
7 qualitative research of user behavior?  
8 A Not that I can remember.  
9 Q Do you have any training in psychology?  
10 A Formal training, are you asking? 11:31:36  
11 Q Yes.  
12 A I do not.  
13 Q Do you have any training in user behavior?  
14 A No formal training, no.  
15 Q Do you have any training in user interface 11:31:54  
16 design?  
17 A I have no formal training in that either.  
18 Q Do you have any training in user  
19 experience design?  
20 A I do not. 11:32:06  
21 Q Do you have any training in survey  
22 science?  
23 A I do not.  
24 Q As part of your work, have you ever given  
25 a talk at Google? 11:32:22

1 A Yes. 11:32:25

2 MS. AGNOLUCCI: I'm going to try to see if

3 we can get this to work in the Zoom platform.

4 Argemira, can you please mark Tab 3a,

5 which is a video clip excerpt of a talk you gave 11:32:40

6 about your book, quote, "Click Here to Kill

7 Everyone" [sic].

8 THE VIDEOGRAPHER: Also, Counsel, everyone

9 should have Exhibit Share access now. I'm not sure

10 if you saw my chat, but ... 11:32:55

11 (Exhibit 5 was marked for identification

12 by the court reporter.)

13 BY MS. AGNOLUCCI:

14 Q If you click on Exhibit 5, there's about a

15 20-minute -- 20-second clip that you can play. 11:33:13

16 Is the best way to do this for us to play

17 it in the screen share so everybody can see and hear

18 the same thing?

19 A I certainly like that idea.

20 MS. AGNOLUCCI: Okay. Argemira, can you 11:33:33

21 do that, please?

22 MS. FLOREZ: Yeah, one second.

23 MS. AGNOLUCCI: I would start at roughly

24 minute 12:24, Argemira, 12:23.

25 MS. FLOREZ: Sure. The host disabled 11:33:53

1 participant screen sharing; so unless I have access 11:33:55  
2 to do that, I won't be able to share my screen.  
3 MS. AGNOLUCCI: Okay. Then let's --  
4 THE VIDEOGRAPHER: It's -- it's --  
5 MS. AGNOLUCCI: -- let Mr. Schneier review 11:34:05  
6 the video.  
7 THE WITNESS: All right. I'm going to go  
8 watch it right now. Presumably you'll hear me  
9 watching it, I think.  
10 THE VIDEOGRAPHER: It's enabled now as 11:34:14  
11 well.  
12 THE WITNESS: All right. Let's do that in  
13 the group. That's easier, I think.  
14 MS. FLOREZ: Okay. One second.  
15 (Video played.) 11:34:24  
16 MS. FLOREZ: Is there any audio playing?  
17 THE WITNESS: No, there's no audio.  
18 THE VIDEOGRAPHER: So when you share it,  
19 you have to enable audio. It's a little box that  
20 you check at the bottom. When you pull it up, you 11:34:48  
21 press Share, and when you select it --  
22 MS. FLOREZ: Let me look.  
23 THE VIDEOGRAPHER: You'll have to close  
24 out of this.  
25 MS. AGNOLUCCI: Let's go off the record. 11:35:02

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1 THE WITNESS: Yeah, those are also taught, 11:35:04  
2 on Zoom learning, as horrible lessons.

3 THE VIDEOGRAPHER: Off the record. The  
4 time is 11:35.

5 (Discussion Off the Record.) 11:35:19

6 THE VIDEOGRAPHER: We're back on the  
7 record. The time is 11:36.

8 MS. AGNOLUCCI: We're going to play for  
9 you a video clip excerpt, starting at minute 12:24,  
10 from a talk you gave at Google about your book 11:36:57  
11 "Click Here to Kill Everyone" [sic].

12 (Video played):

13 Actually, so, you know, there's two  
14 reasons why our phones and computers are  
15 as secure as they are. The first is that 11:37:10  
16 there are security engineers at Apple, at  
17 Microsoft, at Google that are designing  
18 them as secure as they are in the first  
19 place. And those engineers can quickly  
20 write and push down patches when 11:37:22  
21 vulnerabilities are discovered. That's a  
22 pretty good ecosystem. We do that well.

23 BY MS. AGNOLUCCI:

24 Q Mr. Schneier, you stated during the talk  
25 we just watched that there are security engineers at 11:37:37

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1 Google designing phones and computers to be secure, 11:37:40  
2 correct?

3 A Yes.

4 Q Sitting here today, is that something you  
5 would continue to agree with? 11:37:47

6 A Yes.

7 Q You also stated that one of the reasons  
8 our phones and computers are as secure as they are  
9 is that these security engineers can quickly write  
10 and push down patches when there are 11:38:01  
11 vulnerabilities, correct?

12 A Yes.

13 Q Sitting here today, is that something you  
14 continue to agree with?

15 A Yes. 11:38:11

16 Q Going back to your CV -- and we don't need  
17 to look at it -- it includes a list of books and  
18 academic publications that you authored.

19 Is that list complete?

20 A I doubt it. I'm always writing new 11:38:28  
21 publications, and it's going to depend on the date.

22 The books -- well, I had a book come out  
23 in February. So it will depend which version you're  
24 looking at.

25 And I think the papers is complete, but 11:38:42

1       there might be a paper that came out after that was       11:38:44  
2       written.

3           Q       Do we have the most version -- the most  
4       recent version of your CV?

5           A       You probably do, but I don't update it       11:38:54  
6       every minute. So, I mean, I generally update it  
7       twice a year. So you do, but it's possible there's  
8       one or two things missing.

9           MR. CROSBY: I'll note that --

10       BY MS. AGNOLUCCI:       11:39:08

11       Q       You did not --

12           MR. CROSBY: Sorry. I'll note for the  
13       record that, at least on the face of the document,  
14       it says "Produced 6-29."

15           If you'd like, we can follow up off-line       11:39:17  
16       to make sure that the version we produced 6-29 was,  
17       in fact, current as of 6-29.

18           THE WITNESS: It -- so if it's -- if it's  
19       dated 6-29, it is current. There have been no books  
20       and no academic papers since then.       11:39:32

21       BY MS. AGNOLUCCI:

22           Q       You did not write any publications  
23       professing to be an expert in dark patterns,  
24       correct?

25           MR. CROSBY: Object to the form of the       11:39:45

1 question. 11:39:45

2 THE WITNESS: Are you asking me if I say

3 in anything I've written I am an expert in dark

4 patterns?

5 BY MS. AGNOLUCCI: 11:39:52

6 Q Correct.

7 A I have -- no, I have never said those

8 words.

9 Q Have you written any publications

10 exclusively about dark patterns? 11:40:00

11 MR. CROSBY: Object to the form.

12 THE WITNESS: Exclusively, no.

13 BY MS. AGNOLUCCI:

14 Q Do you believe that you're qualified to

15 determine what is and is not a dark pattern? 11:40:11

16 A I do.

17 Q Why?

18 A Because it is an area I have studied, I

19 have written about, and I have taught.

20 Q What do you mean when you say it's an area 11:40:29

21 you've studied?

22 A I have read the literature on dark

23 patterns, and I have synthesized it in a way that

24 makes sense.

25 Q Other than reading the literature on dark 11:40:44

1 patterns, have you done anything else to study dark 11:40:47  
2 patterns?  
3 MR. CROSBY: Object to the form of the  
4 question.  
5 THE WITNESS: I believe I've listened to 11:40:55  
6 talks by the researchers, but I would include that  
7 in studying the literature.  
8 BY MS. AGNOLUCCI:  
9 Q Other than studying the literature on dark  
10 patterns and listening to talks by experts, have you 11:41:04  
11 done anything else to study dark patterns?  
12 A I've taught it, and I consider that sort  
13 of part of the process.  
14 Q Anything else you've done to study dark  
15 patterns other than what we just talked about? 11:41:24  
16 A Not that I recall.  
17 MR. CROSBY: Sorry. Object to the form of  
18 the question.  
19 MS. AGNOLUCCI: We've been going for an  
20 hour. Would folks like to take a break? Or we can 11:41:34  
21 go for another 15 minutes. Up to you.  
22 MR. CROSBY: It's up to the witness.  
23 We've taken a couple of breaks for technical issues  
24 while we're going, and I don't -- we'd love to avoid  
25 going too late in the day, since we got a least -- a 11:41:49

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1 and actual depositions. 12:15:14

2 I can't remember if there are anywhere I  
3 drafted a report but it was never submitted; but if  
4 I did, that would not be listed on -- in my CV, and  
5 I don't remember. 12:15:29

6 Q Do you consider all declarations to be  
7 reports?

8 A Yes.

9 Q Did you rely on any of your previous  
10 declarations or reports in drafting your report in 12:15:44  
11 this matter?

12 A What do you mean by "rely on"?

13 I -- do you -- I looked -- I used the  
14 general information from the Brown report in this  
15 report in places where it was basically the same 12:16:01  
16 thing.

17 Q In other words, there may be portions of  
18 the report in this matter that are identical or very  
19 similar to your report in the Brown matter?

20 A Yes. 12:16:18

21 Q And there are overlapping opinions in the  
22 two matters?

23 A Yes.

24 Q Have any of your reports or testimony been  
25 stricken or excluded by a Court? 12:16:37

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1           A     I'm often not told that. Actually, very           12:16:42  
2           often I'm not told that. I will submit a report,  
3           and then I never hear from attorneys again, and I  
4           don't know what happens. So I cannot answer that  
5           with any degree of accuracy.           12:16:55

6           Q     That you are aware of, have any of your  
7           reports or testimony been stricken or excluded, in  
8           whole or in part, by a Court?

9           A     Not that I'm aware of, no.

10          Q     Are you aware that the Court struck parts           12:17:13  
11          of your opinion in the Brown matter?

12          A     Yes.

13          Q     Are there any others that you may have  
14          forgotten about?

15          A     It's a very hard question to answer           12:17:30  
16          because, by definition, I will not know if there are  
17          any others I've forgotten about.

18          Q     As you sit here right now, you can't think  
19          of any others?

20          A     I cannot.           12:17:43

21                MS. AGNOLUCCI: Let's take a look at the  
22          order in the Brown case.

23                Argemira, can you please mark that as  
24          Exhibit 7.

25                (Exhibit 7 was marked for identification           12:17:57

1 by the court reporter.) 12:17:57

2 THE WITNESS: It has not come through yet.

3 Wait. Let me check.

4 It has not come through yet.

5 It has come through. I have it. 12:18:44

6 BY MS. AGNOLUCCI:

7 Q Okay. Take a look at page 18.

8 A I am on page 18. "These opinions, which

9 rely on Schneier's," dot, dot, dot.

10 Q And I mean page 18 of the pagination at 12:19:22

11 the bottom of the page.

12 A This is -- that's where I am.

13 Q Do you see where it says: "While Schneier

14 is a security technologist, and can opine generally

15 about relevant privacy issues, he does not have 12:19:34

16 specialized expertise in opining about the purported

17 understandings and expectations of consumers

18 specifically. Nor can he merely impute his own

19 opinions to those of a reasonable consumer."

20 Do you see that, Mr. Schneier? 12:19:49

21 A I do.

22 Q And then on the next page, the second

23 paragraph, do you see where it says (as read):

24 "Accordingly, Google's motion to exclude the

25 consumer expectations opinions is granted"? 12:20:00

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1 A Yes. 12:20:04

2 Q Are you purporting to opine in this case  
3 on how the Plaintiffs understood Google's  
4 disclosures regarding Web & App Activity?

5 A I don't know. No. 12:20:31

6 Q "No," you are not providing an opinion  
7 about the understandings and expectations of  
8 consumers regarding the Web & App Activity toggle?

9 MR. CROSBY: Object to the form of the  
10 question. 12:20:52

11 THE WITNESS: I don't think I am, no.

12 BY MS. AGNOLUCCI:

13 Q Are you providing an opinion about the  
14 reasonable consumer's understanding of the  
15 functionality of Web & App Activity? 12:21:04

16 A Definitely not.

17 Q Are you providing any opinion about  
18 consumer expectations relating to Web & App  
19 Activity?

20 A I am not. 12:21:22

21 Q Same questions for Supplemental Web & App  
22 Activity.

23 Are you purporting to opine in this case  
24 on how the Plaintiffs understood Google's  
25 disclosures regarding Supplemental Web & App 12:21:35

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1 Activity? 12:21:35

2 A I am not.

3 Q Are you providing an opinion about the

4 understanding and expectations of consumers

5 regarding the Supplemental Web & App Activity 12:21:44

6 control?

7 A I am not.

8 Q Are you providing an opinion about the

9 reasonable consumer's understanding of the

10 functionality of Supplemental Web & App Activity? 12:21:55

11 A I am not.

12 Q Are you purporting to offer an opinion in

13 this case on whether any consumer suffered harm as a

14 result of Google's actions?

15 A Are you asking about any particular 12:22:26

16 consumer?

17 Q Any class member.

18 A I talk about harms in general in my report

19 in many places, but nowhere do I associate a

20 particular harm with a particular consumer, no. 12:22:41

21 Q Let's take a look now at paragraph -- I'm

22 sorry -- page 20 of the order granting the Daubert

23 motions in the Brown case, marked as Exhibit 7.

24 A You said "page 20"?

25 Q Yes. 12:23:13

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1 Look at the part that says "Google's 12:23:15  
2 Intent, Services, or Receipt of Data."  
3 Do you see where it says: "The Court has  
4 considered the parties' arguments" --  
5 A Slow down. 12:23:26  
6 Q At the bottom of the page.  
7 A Yes, I see it. I'm sorry. Yes, I see it.  
8 Q -- "and agrees that some of Schneier's  
9 opinions impermissibly opine on Google's intent or  
10 state of mind. For example, he opines" -- and then 12:23:34  
11 she goes on to quote from your report. "Similarly,  
12 Schneier opines that 'Google counts on most people  
13 to access the Internet.'" And she goes on to quote  
14 from your report.  
15 A Yes. 12:23:50  
16 Q "Schneier also impermissibly opines that  
17 'Google is motivated to ensure that any privacy  
18 controls are difficult to understand.'"  
19 Do you see all of that?  
20 A I do. 12:24:00  
21 Q And are you aware of the fact that the  
22 Court granted the motion to exclude your testimony  
23 about the intent or state of mind or motivation of  
24 Google?  
25 A I read that here, yes. 12:24:13

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1 Q Do you purport to opine in this case on 12:24:19  
2 the intent or state of mind or motivation of Google?  
3 A I don't believe so, no.  
4 Q Going back to your report, who drafted it?  
5 A I did. 12:24:41  
6 Q Did anyone assist you in drafting it?  
7 A What do you mean by "assist"?  
8 Q What does it mean to you to assist?  
9 A To -- to write it for me.  
10 Q Did anyone write it for you? 12:25:02  
11 A No.  
12 Q Did anyone draft parts of it?  
13 A No.  
14 Q Did anyone edit it?  
15 A Yes. 12:25:14  
16 Q Other than lawyers.  
17 A My assistant helped with editing.  
18 Wait. I might take that back.  
19 No, I'm sure she -- she finds commas. She  
20 finds periods. 12:25:36  
21 Yes. Let's say yes.  
22 Q In your report, you list a series of  
23 opinions, both about Google and not about Google.  
24 Does this report contain the full scope of  
25 your opinions in this matter? 12:26:24

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1 BY MS. AGNOLUCCI: 12:35:32

2 Q Was the data tied to any individual user?

3 MR. CROSBY: Same objection.

4 THE WITNESS: Some of the data was, yes.

5 Google believes some of the data was, yes. Yes. 12:35:41

6 BY MS. AGNOLUCCI:

7 Q Which data?

8 A That, I don't know. Probably all of it.

9 If you're going to tie one piece, you're

10 going to tie it all. 12:35:55

11 Q The basis of your belief that the data was

12 tied to an individual user is what?

13 A It's based on the representations of

14 Google, Google documentation, and all the documents

15 that I read in association with this case. 12:36:14

16 Q You did not do any research that involved

17 communicating with users of Web & App Activity to

18 develop your opinions in this case, correct?

19 A I did not.

20 Q You did not do any research that involved 12:36:44

21 communicating with users of Supplemental Web & App

22 Activity to develop your opinions in this case,

23 correct?

24 A I did not, no.

25 Do you count reading the declarations of 12:36:55

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1 opinions are in that section starting at page 52? 12:38:47

2 A Yes, but there are some Google-specific  
3 things in the general section. So it's not as clean  
4 as we'd like it to be.

5 Q You opine in your report that Google's 12:39:02  
6 disclosures to users concerning WAA and sWAA and  
7 Google's disclosures to app developers constitute  
8 dark patterns, correct?

9 A I do.

10 Q Can you tell me what specific disclosures 12:39:21  
11 you believe constitute dark patterns?

12 A I believe they are all in my report.

13 Q Other than the disclosures referenced  
14 specifically in your report, are there any other  
15 disclosures that you are opining constituted dark 12:39:39  
16 patterns for purposes of this case?

17 A No.

18 Q Define "dark patterns."

19 A So I did that in my report; so let me find  
20 that, because I think it's a good definition, and I 12:39:55  
21 don't want to make one up.

22 Q There's one at paragraph 161, page 44.

23 A Yeah, that's where I was headed.

24 Yes, that -- I will stand by that.

25 Q Okay. So let's read it so that we are 12:40:13

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1       sure. 12:40:17

2               "'Dark patterns' is an umbrella term for a

3       variety of subversive user-design tricks intended to

4       manipulate users into doing things they wouldn't

5       normally choose to do." 12:40:27

6               Do you see that?

7       A     I do.

8       Q     Is that your definition of "dark

9       patterns"?

10       A     That's the definition I use in this 12:40:37

11       report -- yes, that's a definition I use in this

12       report.

13       Q     That's the definition you use for purposes

14       of your analysis of this case?

15       A     Let me step back. 12:40:49

16               That is one sentence, and that really

17       isn't a definition. That's a -- that's an

18       introductory sentence.

19               I think the whole section really defines

20       the term, because there's a lot of -- of types that 12:41:02

21       I -- that I go into in subsequent paragraphs. I

22       would not stand on the one sentence as the

23       definition, nothing else.

24       Q     Are you saying that the rest of your

25       report provides examples that illustrate the 12:41:19

1 sentence we just read? 12:41:24

2 A I don't think I provide a lot of -- I  
3 provide some examples. Certainly the references  
4 provide a lot of examples. I believe I listed a few  
5 examples in the section. I'm seeing them now, but 12:41:39  
6 there are many more in the references.

7 Q I'm trying to understand if you were  
8 asked, for purposes of your work in this case, to  
9 say what is a dark pattern, what you would say.

10 A I would point to the -- the paragraph in 12:41:58  
11 the report.

12 Q Which paragraph?

13 A The one we were just talking about, which  
14 is now blurry, 161.

15 Q You believe that paragraph 161 contains 12:42:14  
16 your definition of "dark patterns" for purposes of  
17 your analysis in this case?

18 A No. I believe that all of the references  
19 contain the definition and that 161 is a summary of  
20 all the references. 12:42:33

21 Q Are you able to articulate a definition of  
22 "dark patterns"?

23 A I think the definition in the report is --  
24 is good. So it's -- I mean, I would use this entire  
25 section. Certainly paragraph -- 12:42:53

1 Q Is it -- 12:42:56

2 A -- 161 and -62, -63. I think examples are

3 necessary.

4 I mean, if I'm teaching this, you don't

5 just say one sentence and leave the room. You spend 12:43:05

6 an entire class. And the process of seeing them and

7 seeing the types and seeing examples is how we

8 define them.

9 Q It sounds like you're not able to provide

10 a definition that's shorter than four paragraphs; is 12:43:22

11 that fair?

12 MR. CROSBY: Object to the form of the

13 question.

14 THE WITNESS: I am not able, right now, in

15 a deposition under oath, to provide a definition 12:43:32

16 that is under four paragraphs. That feels like a

17 real piece of work and should be done properly.

18 BY MS. AGNOLUCCI:

19 Q Is that definition anywhere in the report,

20 that you took several months to draft? 12:43:45

21 A I believe this section is the definition.

22 Q And you are not able to point to a

23 definition shorter than this four-paragraph section

24 in your report?

25 A I'm not -- I'm not sure where you got four 12:44:02



1 paragraphs, because I didn't say four paragraphs. 12:44:04

2 No.

3 Q Tell me where in your report the

4 definition of "dark patterns" is.

5 MR. CROSBY: Object to the form of the 12:44:16

6 question. Asked and answered.

7 THE WITNESS: It's in section 6.3.

8 BY MS. AGNOLUCCI:

9 Q All of the paragraphs in section 6.3 are

10 the definition of "dark patterns"? 12:44:31

11 A If you wish, I will go through and check

12 that. This feels like a lot of work. It is -- it

13 is ...

14 I feel like I answered this already.

15 Wait. Stop. I answered this already. 12:44:39

16 Q I think I misunderstood your answer, then,

17 because I thought you had said that it was in

18 paragraphs 161, 162, 163, and 164; but when I

19 referred to four paragraphs, you seemed to disagree

20 with that. 12:44:57

21 So maybe --

22 A Yeah, because I don't --

23 Q -- you can help me understand.

24 A I think this section is my definition --

25 includes my definition of "dark patterns." I think 12:45:04

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you learn it from 160 -- paragraph 161 and the  
paragraphs following. Certainly paragraphs 166,  
167, 168 inform the definition; 169, 170 inform the  
definition. I think the examples of legislation,  
the FTC report -- that's 172, 173 -- inform the  
definition, as well as the examples in the  
paragraphs following.

12:45:06

12:45:28

8                   So, no, I don't think -- it's not four  
9       paragraphs. I don't have a one-sentence definition  
10      for you right now. This is a complicated -- it's a                   12:45:42  
11      complicated topic, and it doesn't boil down as  
12      simply as -- as that.

13                   And when I teach it, it is this  
14       complicated.

15 Q Your best answer is that the eight-page 12:46:03  
16 section, 6.3, of your report is the definition of  
17 "dark patterns"?

18 MR. CROSBY: Object to the form of the  
19 question.

20 THE WITNESS: I think the best answer is 12:46:12  
21 what I said.

22 BY MS. AGNOLUCCI:

23 Q Do you disagree with my characterization  
24 of what you said?

25 MR. CROSBY: Object to the form -- 12:46:22

1 THE WITNESS: Say it again. 12:46:23

2 MR. CROSBY: -- of the question.

3 BY MS. AGNOLUCCI:

4 Q Your best answer is that the eight-page

5 section, 6.3, of your report is the definition of 12:46:28

6 "dark patterns"?

7 MR. CROSBY: Object to the form of the

8 question. Misstates testimony.

9 THE WITNESS: No, I said that it includes.

10 MS. AGNOLUCCI: Let's -- let's hold back 12:46:41

11 on the speaking objections.

12 Q It includes the definition of "dark

13 patterns."

14 But you are not able to narrow that

15 eight-page section down any further, correct? 12:46:51

16 A I believe I have been narrowing it, but

17 not enough for you.

18 Q I didn't hear any narrowing in the answer

19 that you just gave me --

20 A Okay. 12:47:05

21 Q -- where you went through every paragraph

22 in the eight pages of the report.

23 If I missed something in your answer, let

24 me know, but I read it as all eight pages are the

25 definition of "dark patterns." 12:47:13

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1 MR. CROSBY: Objection. Badgering. 12:47:17  
2 There's no question.  
3 THE WITNESS: That's fair. There is no  
4 question.  
5 BY MS. AGNOLUCCI: 12:47:24  
6 Q The question was, quote: But you are not  
7 able to narrow that eight-page section down any  
8 further, correct?  
9 A The definition is what I put in my report.  
10 Q The sentence you originally read in 12:47:45  
11 paragraph 161 reads: "'Dark patterns' is an  
12 umbrella term for a variety of subversive  
13 user-design tricks intended to manipulate users into  
14 doing things they wouldn't normally choose to do."  
15 Do you see that? 12:48:00  
16 A I do.  
17 Q Now, I understand that you think it's  
18 important to illustrate the definition with the  
19 other examples given in this section of your report.  
20 But do you believe that one sentence to be 12:48:17  
21 a true part of the definition of "dark patterns"?  
22 MR. CROSBY: Object --  
23 THE WITNESS: I --  
24 MR. CROSBY: -- to the form of the  
25 question. 12:48:22

1 THE WITNESS: I do. 12:48:23

2 BY MS. AGNOLUCCI:

3 Q Do you believe that one sentence to be

4 true with respect to your analysis of what Google

5 does that constitutes a dark pattern? 12:48:32

6 A I do.

7 Q In other words, dark patterns require an

8 intent to manipulate users, correct?

9 MR. CROSBY: Object to the form of the

10 question. 12:48:55

11 THE WITNESS: I like my words better.

12 BY MS. AGNOLUCCI:

13 Q "Intended to manipulate users"?

14 A Yes.

15 Q Dark patterns are intended to manipulate 12:49:14

16 users, correct?

17 A Yes.

18 Q When I first asked you to define "dark

19 patterns," you read the first sentence of paragraph

20 161 and said, "That is the definition I use in my 12:49:27

21 report."

22 Have you used other definitions of "dark

23 patterns" in other places?

24 MR. CROSBY: Object to the form of the

25 question. 12:49:39

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1 THE WITNESS: I don't remember. 12:49:41

2 BY MS. AGNOLUCCI:

3 Q Would you agree that there is no one  
4 definition of a "dark pattern"?

5 A I agree that there's a consensus of 12:49:56  
6 opinion on what dark patterns are. There's broad  
7 agreement on what constitutes a dark pattern. There  
8 are overlapping taxonomies of dark patterns, and  
9 there are edge cases.

10 Q What is the consensus of opinion on what 12:50:19  
11 dark patterns are?

12 A Oh, wow. That is something I would have  
13 to research.

14 Q You haven't researched that?

15 A I haven't memorized that. 12:50:31

16 Q Can you say anything about what the  
17 consensus of opinion on what dark patterns are is?

18 A I tried to put that in my report.

19 Q Is that in section 6.3, those eight pages  
20 we were just looking at? 12:50:49

21 A Yes.

22 Q Do you believe that all of those eight  
23 pages reflect the consensus of opinion on what dark  
24 patterns are?

25 A That, I don't know. I'm listing 12:51:01

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1 opinion -- I'm listing definitions and taxonomies of 12:51:04  
2 different researchers, of different government  
3 agencies, of different governments. So I think it  
4 represents the -- the cluster of opinions of what  
5 dark patterns are. 12:51:18

6 Q You said there's a consensus of opinion.  
7 What's the difference between a consensus  
8 and a cluster?

9 MR. CROSBY: Object to the form of the  
10 question. 12:51:30

11 THE WITNESS: I don't know. I think I'm  
12 using one to mean the things we all agree on and the  
13 other cluster to mean the different ways we're  
14 describing it.

15 If you look at the taxonomies, they -- 12:51:46  
16 they overlap. They contain the same stuff, but  
17 they're defined a bit differently.

18 BY MS. AGNOLUCCI:

19 Q Okay. So where are the things we all  
20 agree on in your report? 12:51:58

21 A I think that first sentence of paragraph  
22 161 and other things as well.

23 I would have to do more work to -- to map  
24 the different researchers' and government bodies'  
25 way of defining them on top of each other. 12:52:34

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1 Q You believe the first sentence of 12:52:38  
2 paragraph 161 includes the consensus opinion of what  
3 dark patterns are?

4 MR. CROSBY: Object to the form of the  
5 question. 12:52:48

6 THE WITNESS: No. The other way around.  
7 I believe the consensus opinion includes the  
8 sentence.

9 BY MS. AGNOLUCCI:

10 Q You say, "There's broad agreement on what 12:53:02  
11 constitutes a dark pattern."

12 Is there broad agreement that the first  
13 sentence of 161 is what constitutes a dark pattern?

14 A I would say yes.

15 Q You refer in your report to several 12:53:29  
16 definitions of "dark patterns," correct?

17 A Yes.

18 Q You agree that there are multiple  
19 definitions of "dark patterns"?

20 A Yes. 12:53:44

21 Q Do you believe that whether something is  
22 or is not a dark pattern is context specific?

23 A What do you mean by that?

24 Q Do you believe that whether something is  
25 or is not a dark pattern depends on context? 12:54:11

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1 MR. CROSBY: Object to -- 12:54:19

2 THE WITNESS: I'll try again too.

3 What do you mean by "context"?

4 BY MS. AGNOLUCCI:

5 Q What does "context" mean to you? 12:54:25

6 MR. CROSBY: Object to the form of the

7 question.

8 THE WITNESS: The world it's embedded in.

9 That's a really general definition. So I want to

10 know what you mean by "context." 12:54:34

11 BY MS. AGNOLUCCI:

12 Q Do you believe that whether something is

13 or is not a dark pattern can depend on the user

14 interacting with that experience?

15 A It's actually a hard question to answer 12:55:06

16 because "can depend" means there exists one user on

17 the planet for whom or one exception. So I hesitate

18 to make the generality.

19 But, in general -- there might be

20 exceptions -- no. 12:55:23

21 Q In other words, in general, something is

22 or is not a dark pattern regardless of who's

23 interacting with it?

24 MR. CROSBY: Object to the form of the

25 question. 12:55:37

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1 THE WITNESS: In general -- in general -- 12:55:38  
2 and there might be exceptions -- no.  
3 MS. AGNOLUCCI: Can you queue up Tab 7,  
4 Argemira?  
5 And let's take a look at Exhibit 9. 12:55:59  
6 (Exhibit 9 was marked for identification  
7 by the court reporter.)  
8 THE WITNESS: All right. It arrived.  
9 BY MS. AGNOLUCCI:  
10 Q Did you write a book called "A Hacker's 12:56:34  
11 Mind"?  
12 A I did.  
13 Q Does Exhibit 9 appear to be an excerpt  
14 from your book?  
15 A It appears to be. I have a copy of the 12:56:48  
16 book in eyesight, if we need to confirm it.  
17 Q Do you see the language highlighted on the  
18 right?  
19 A I do.  
20 Q "'Dark patterns' is a term given to 12:57:00  
21 subversive user-design tricks that co-opt common  
22 designs to nudge users towards certain ends."  
23 A I do.  
24 Q In this definition, you say that a user  
25 design might be a dark pattern if it nudges a user 12:57:14

1 And I was asking: Anything else? 13:06:17

2 A I want to say the methodology of

3 generalization, because I'm not sure what you're

4 asking.

5 Q Let's take a look at Exhibit 10, which is 13:06:29

6 already loaded up in your Exhibit Share.

7 A Thank you for the preloading.

8 (Exhibit 10 was marked for

9 identification by the court reporter.)

10 BY MS. AGNOLUCCI: 13:06:38

11 Q It's a New York Times article by Kashmir

12 Hill.

13 You're welcome. We're trying to make this

14 efficient for everybody.

15 A I appreciate your hard work. 13:06:46

16 Exhibit 10 --

17 Q Scroll to page --

18 A -- tab 8?

19 Q Scroll to page 3.

20 A Okay. 13:07:07

21 Q This is an article by Kashmir Hill about

22 trying to live without the tech giants.

23 Do you see on page 3, where she says

24 they're all -- "There are alternatives for products

25 and services offered by the tech giants"? 13:07:18

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1 A Yes. 13:07:21

2 Q Do you agree with that statement?

3 A Yes.

4 Q Going back to your report on page 4,

5 paragraph three -- 13:07:33

6 A Yes.

7 Q -- you write that: "Google fails to

8 adequately disclose or provide notice of its data

9 collection practices or to provide users with

10 effective privacy controls." 13:07:53

11 Do you see that?

12 A Yes.

13 Q Is that opinion about the WAA and sWAA

14 controls?

15 A Yes. 13:08:12

16 Q Is it about any other controls?

17 A It might be true about other controls, but

18 it is written here about the controls at issue in

19 this case.

20 Q In other words, for purposes of this case, 13:08:23

21 you are offering an opinion about the WAA and sWAA

22 controls?

23 A Yes.

24 And there's an extra indent in the

25 paragraph. God knows why. 13:08:36

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1 Q About halfway through the paragraph, you 13:08:44  
2 say (as read): "The Google privacy controls  
3 addressed in this lawsuit, WAA and sWAA, are merely  
4 an illusion."

5 Do you see that? 13:08:51

6 A I do.

7 Q Is that opinion limited to WAA and sWAA  
8 for purposes of this case?

9 A For purposes of this case, yes.

10 Google might have many other -- 13:09:06

11 Q Why --

12 A -- reasons.

13 Q What is the illusion created by WAA?

14 A So I believe this is something I wrote  
15 about extensively; so let me find it. 13:09:23

16 So I write about this in section 10.1,  
17 where I talk about how Google presents WAA and sWAA  
18 as ways for users to control their privacy and that  
19 contain a switch to -- to turn the controls off, and  
20 then I write about how Google continues to collect 13:10:08  
21 data on users even when they switch the tracking  
22 toggle to off.

23 Q And then in the same paragraph on page 4,  
24 paragraph three, you say that Google uses dark  
25 patterns, subversive user interface designs that 13:10:35

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1 manipulate users into making decisions that serve 13:10:39  
2 Google's purposes rather than their own, to provide  
3 users and app developers with a false sense of  
4 security.

5 Do you see that? 13:10:50

6 A Yes, I found it.

7 Q What methodology did you use to come to  
8 that conclusion?

9 A I looked at the Google controls with  
10 respect to the definitions of "dark patterns" that 13:11:14  
11 are discussed in section whatever it is -- section  
12 6.3 and as outlined in the various sections of --  
13 various subsections of section 11, came to the  
14 conclusion. It's the methodologies analysis.

15 Q It's the methodology of analysis? 13:11:55

16 A Eh, maybe that's not right.

17 I don't know. I'd love to see a list of  
18 methodologies, if we're going to talk about  
19 methodologies, so I can see -- it's not a way I  
20 normally think of things. 13:12:11

21 Q You understand that in order to be  
22 qualified as an expert in this case, you have to  
23 apply some methodology or scientific process,  
24 correct?

25 MR. CROSBY: Object to the form of the 13:12:27

1 question. 13:12:29

2 THE WITNESS: I've -- I've never heard  
3 that explicitly.

4 BY MS. AGNOLUCCI:

5 Q Did you apply any methodology to reach the 13:12:42  
6 conclusions that you reached in this case?

7 MR. CROSBY: Object to the form of the  
8 question.

9 THE WITNESS: Again, I do not know a list  
10 of methodologies of which to pick one. 13:12:51

11 I -- if you look at section 11, I analyzed  
12 Google's screens and their disclosures and their  
13 user interfaces, in light of what I know about dark  
14 patterns, as referenced in that other section, and  
15 came to the conclusions I did. 13:13:18

16 BY MS. AGNOLUCCI:

17 Q Did you apply any other methodology, other  
18 than what you just told me about, to reach the  
19 conclusions you reached in this case?

20 MR. CROSBY: Object to the form of the 13:13:31  
21 question.

22 THE WITNESS: So other people have looked  
23 at various things Google has done in light of dark  
24 patterns. I know I referenced them somewhere in  
25 here. I certainly read those, and those probably 13:13:52

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1 did inform my analysis, yes. 13:13:57

2 BY MS. AGNOLUCCI:

3 Q Anything else?

4 A Not that I can think of right now.

5 Q Earlier, we discussed -- and I believe you 13:14:30  
6 agreed with -- the proposition that there are  
7 many -- strike that.

8 Earlier, we discussed -- and I believe you  
9 agreed with -- the proposition that there are  
10 different definitions of "dark patterns" out there, 13:14:46  
11 correct?

12 A Yes.

13 Q And in paragraph 161 of your report, you  
14 read a definition by Harry Brignull, who you say  
15 coined the term, correct? 13:15:00

16 A Yes.

17 Q Now, taking a look at paragraph 166 of  
18 your report, you cite a definition by Professor  
19 Colin Gray, who defines "dark patterns" as:  
20 "Instances where designers use their knowledge of 13:15:16  
21 human behavior, (e.g., psychology) and the desires  
22 of end users to implement deceptive functionality  
23 that is not in the user's best interests."

24 Do you see that?

25 A I do. 13:15:30

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1 Q Is that different than Mr. Brignull's 13:15:35  
2 definition?

3 A Where do you see Brignull's definition?

4 Q 161.

5 A I don't think I see Brignull's definition 13:16:03  
6 here. I mean, I don't see a quote by Brignull.

7 My guess is they're substance --  
8 substantively the same, but there might be  
9 differences around the edges.

10 But I didn't quote Brignull, looking at 13:16:21  
11 these pages.

12 Q I believe paragraph 161 contains multiple  
13 quotations by Brignull and cites to Brignull.

14 A It does, but that first sentence is a  
15 sentence I wrote. It's not in quotes. So I 13:16:36  
16 hesitate to ascribe it exactly to -- to Brignull,  
17 because if it was his -- his words, I would have  
18 quoted it. So we would have to pull the records.

19 Q Going back to page 46 and to the bolded  
20 list we were looking at under Colin Gray's 13:16:54  
21 definition, you see a list of behaviors that  
22 purportedly constitute dark patterns, correct?

23 A I do.

24 Q Those behaviors include nagging,  
25 obstruction, sneaking, interface interference, and 13:17:16

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1 forced action, correct? 13:17:19

2 A Yes.

3 Q Do you agree that those are all categories  
4 of dark patterns?

5 A Yes. 13:17:27

6 Q Which one of these categories do you  
7 contend the WAA and sWAA settings fit into?

8 A So I believe I said all of that in the  
9 relevant sections.

10 Do you want me to find them all and read 13:17:50  
11 them to you?

12 Q Let's take a look at the relevant  
13 sections. Yes.

14 A I'm on page 88.

15 Q Okay. 13:18:14

16 A So -- I'm sorry. Do you want me to find  
17 and read the sentences where I name dark patterns?

18 Q I'm asking you which of the categories  
19 from page 46 WAA and sWAA fit into. So I want you  
20 to answer me. And if you need to look at what you 13:18:37  
21 wrote to come to that answer, that's fine.

22 A Okay. So give me a second.

23 All right. So in paragraph 314, I say  
24 that Google's WAA Help Page exemplifies those dark  
25 patterns, which are the ones I reference in 13:19:06

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1 paragraph 311, which is sneaking. 13:19:08

2 Section 11.2, they -- the WAA -- the WAA

3 and sWAA toggles themselves, I include under

4 sneaking.

5 Section 11.3, Google statements about 13:19:47

6 privacy and user control exemplify, in Gray's

7 taxonomy, interface interference.

8 Section 11 --

9 Q Is that --

10 A I'm sorry? 13:20:10

11 Q -- with respect to users or developers for

12 interface interference?

13 A In section 11.3, it is about -- section

14 11-point --

15 Q I didn't hear your answer. 13:20:29

16 A Really? That's -- in section --

17 MS. AGNOLUCCI: Nor did the court

18 reporter.

19 THE REPORTER: Please repeat.

20 THE WITNESS: That's not good. All right. 13:20:38

21 That's on me.

22 Section 11.3, I'm referring to users.

23 In section 11.4, I'm talking about

24 Google's WAA controls for location privacy, and I

25 write of that being an example of hidden 13:20:53

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1 information, which is a subsection of interface 13:20:58  
2 interference. So it's interface interference in  
3 that previous paragraph.

4 Section 11.5, I talk about Google's WAA  
5 and sWAA consent bump and put that in the category 13:21:11  
6 of nagging.

7 Section 11.6 -- and I think there's a way  
8 you thought about for developers, is where I look at  
9 Google's disclosure to app developers. And there, I  
10 also contend that it is an example of sneaking. 13:21:32

11 And that's it.

12 Q Okay. So you --

13 A And then --

14 Q -- told me about nagging.

15 A I'm sorry. You go. 13:21:46

16 Q Sorry. Were you going to say something  
17 else?

18 A Yeah, I'm just saying that in section  
19 11.7, I -- I just talk about Google employees saying  
20 much of the same things. 13:21:58

21 All right. I'm sorry. Go.

22 Q So you contend that the WAA and sWAA  
23 toggles/disclosures can constitute examples of  
24 nagging, sneaking, and interface interference?

25 MR. CROSBY: Object to the form of the 13:22:20

1 question. 13:22:21

2 THE WITNESS: Yes.

3 BY MS. AGNOLUCCI:

4 Q If you look at paragraph 167, it refers to

5 the 2017 book "White Hat" [sic]. 13:22:36

6 That book has 12 different dark pattern

7 examples: Bait and switch, disguised ads, forced

8 continuity, forced disclosure, friend spam,

9 misdirection, road block, roach motel, door slam,

10 trick questions, click bait, and hidden costs. 13:22:51

11 Do you see that?

12 A I do.

13 Q You say: "These can be mapped to Gray's

14 taxonomy."

15 What does that mean? 13:23:03

16 A That means -- well, so --

17 Okay. First thing: The book is called

18 "White Hat UX." Let's get the book title correct in

19 the deposition.

20 That if you look at Gray's taxonomy, he 13:23:13

21 has five major categories and then many

22 subcategories. So if you look at the -- the diagram

23 that is in the page -- paragraph 166, you'll see

24 includes, so all those including.

25 And you can -- and I didn't do it here, 13:23:30

1 but I did it just -- I did it enough to know that 13:23:33  
2 it's true. I didn't write it out -- that you can  
3 map these 12 different patterns into these five  
4 buckets, given Gray's subcategories.

5 Q In paragraph 168, you refer to the EU Data 13:23:55  
6 Protection Board's taxonomy, and you state that that  
7 one has six patterns: overloading, skipping,  
8 stirring, hindering, fickle, and left in the dark,  
9 correct?

10 A Yes. 13:24:09

11 MS. AGNOLUCCI: Let's take a look at  
12 Exhibit 11, which is already in your folder.

13 (Exhibit 11 was marked for  
14 identification by the court reporter.)

15 BY MS. AGNOLUCCI: 13:24:27

16 Q It's a document entitled "EU Data  
17 Protection Board" [sic].

18 Is that the document that contains the  
19 taxonomy you are referencing in your report?

20 A I'm sorry. This is Tab 8? No. 13:24:40

21 Q Exhibit 11.

22 A Exhibit 11. Okay. Just --

23 Q Tab 9 --

24 A It just arrived.

25 Q -- your -- 13:24:46

1 A It just arrived. 13:24:46

2 I have to refresh. I keep forgetting

3 that.

4 And you're asking me if that is the

5 reference I used. 13:24:55

6 All EU documents look alike. So let's

7 check.

8 Yes, that looks correct. It's the right

9 date.

10 Q Take a look at the -- 13:25:19

11 A It's the right version number. Yes.

12 Q Take a look at the "Executive Summary."

13 It says: "These Guidelines offer practical

14 recommendations to designers and users of social

15 media platforms on how to assess and avoid so-called 13:25:33

16 'dark patterns' in social media interfaces that

17 infringe on GDPR requirements."

18 Do you see that?

19 A I do not, but I just got here. So it's

20 on -- it's on the first page? 13:25:47

21 All right. So I see the first paragraph

22 that I see the --

23 Q First paragraph under "Executive Summary."

24 A Under "Executive Summary." Hang on.

25 Oh, yeah, it's the first sentence. Yes, I 13:26:02

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1 see it. Yes. I do. 13:26:04

2 Q Do you contend that Google's WAA and sWAA  
3 disclosures constitute a social media platform?

4 A No.

5 Q Do they constitute social media 13:26:32  
6 interfaces?

7 A They can.

8 Q How?

9 A Well, if they're used by social media  
10 sites, then they are part of the interface. 13:26:45

11 Q Any other way?

12 A Not that I can think of right now.

13 MR. CROSBY: So I think we let you know  
14 that we have a hard stop for a lunch break at 10:30  
15 Pacific, 1:30 Eastern. 13:27:13

16 MS. AGNOLUCCI: Let's go off the record.

17 THE VIDEOGRAPHER: This marks the end of  
18 Media No. 2. Off the record. The time is 1:27.

19 (Lunch Recess.)

20 THE VIDEOGRAPHER: This marks the 14:36:19  
21 beginning of Media No. 3 in the deposition of Bruce  
22 Schneier. We are back on the record. The time is  
23 2:36 Eastern time.

24 BY MS. AGNOLUCCI:

25 Q Before the break, we were talking about 14:36:36



1 various definitions of "dark patterns" by Gray, the 14:36:40  
2 FTC, and the EU.

3 Do you remember that, Mr. Schneier?

4 A I do.

5 Q Do you contend that all of the behaviors 14:36:51  
6 described by Gray, the FTC, and the EU are dark  
7 patterns?

8 A Yes.

9 Q Would you agree that taking their  
10 definitions of "sneaking," that those definitions 14:37:09  
11 are not identical?

12 A I give those definitions in paragraphs  
13 311, 312, and 313, and they are not identical.

14 Q The first is Colin Gray's definition. He  
15 describes "sneaking" as often occurring in order to 14:37:53  
16 make the user perform an action they may object to  
17 if they had knowledge of it, correct?

18 A Yes.

19 Q And then the second is the FTC's  
20 definition, which considers practices having to do 14:38:09  
21 with consumer shopping experiences, correct?

22 A I write that it includes that; so I think  
23 that's a better verb than "considers."

24 Q How would you characterize the EU's -- the  
25 FTC's definition of "sneaking"? 14:38:27

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1           A     It includes tricking a shopper into buying           14:38:29  
2     unwanted items by using a pre-checked box and hiding  
3     material information or significant product  
4     limitations from people.

5           Q     Does it include anything else?                   14:38:43

6           A     Almost certainly. Those are not full  
7     sentences I'm quoting.

8           Q     Do you know what else the FTC's category  
9     includes?

10          A     If you're asking me if I memorized their           14:38:57  
11     definition, I did not.

12          Q     Do you know whether the FTC's definition  
13     includes practices that don't have to do with  
14     consumer shopping?

15          A     I don't.   14:39:11

16          Q     The third definition of "sneaking" is the  
17     EU's category of left in the dark, which refers  
18     specifically to hiding information or data  
19     protection control tools and, which we just  
20     discussed, applies in the context of social media           14:39:31  
21     platforms, correct?

22          A     We discussed social media platforms, but I  
23     don't remember discussing the EU in particular, that  
24     their definition relies on social media platforms.  
25     So remind me of that.                                       14:39:47

1 Q We looked at the exhibit from the EU that 14:39:53  
2 included the EU's definition. It's Exhibit 11.  
3 A Right. It's on my screen.  
4 Q And in the appendix -- in the executive  
5 summary, it says (as read): "These Guidelines offer 14:40:05  
6 practical recommendations for designers and users of  
7 social media platforms to assess 'dark patterns' in  
8 social media interfaces."  
9 A Yes.  
10 Q Do you remember that? 14:40:20  
11 A I see it right now.  
12 Q So my question to you was simply that the  
13 third definition of "sneaking" is the EU's category  
14 of left in the dark, which refers to hiding  
15 information or data protection control tools and 14:40:36  
16 which applies in the context of social media  
17 platforms, correct?  
18 A I think it applies in other contexts as  
19 well, but it does apply in that context, yes.  
20 Q Where does the EU say that it applies in 14:40:49  
21 other contexts?  
22 A I would have to research that.  
23 Q You can't point to anything the EU said  
24 that contradicted --  
25 A I -- 14:41:02

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1 Q -- the executive summary, which says how 14:41:03  
2 to avoid dark patterns in social media interfaces?

3 A At this moment, I don't have access to any  
4 other EU documents or writings on dark patterns. I  
5 have not memorized them. No, I cannot. That is 14:41:16  
6 something that can be researched.

7 Q Based on your knowledge and the materials  
8 we've just looked at, would you agree that the  
9 contexts for sneaking are different as between  
10 Mr. Gray, which talks generally about performing an 14:41:34  
11 action, the FTC, which provides as an example  
12 consumer shopping, and the EU, which talks about  
13 social media platforms?

14 A I -- I don't have an opinion on the  
15 context. 14:41:52

16 Certainly the examples are different,  
17 which is why I included all of them.

18 Q Which definition of "sneaking" are you  
19 applying in your analysis in this case?

20 A I think they all apply in this case. 14:42:05

21 Q You think the FTC's definition of  
22 "sneaking," which talks about consumer practices and  
23 shopping experiences, applies in this case?

24 A The F- -- the FTC's definition, which  
25 includes an example of consumer practices in what 14:42:27

1 you said, applies in this case, yes. 14:42:31

2 Q You mentioned that you weren't sure  
3 whether the FTC had any nonconsumer shopping  
4 examples.

5 If, upon reviewing the FTC documentation 14:42:42  
6 you cite, you discover that there are no examples  
7 outside of the consumer-shopping context, does that  
8 change your opinion that the FTC's definition of  
9 "sneaking" applies in this case?

10 A I don't know. I would have to actually do 14:42:58  
11 that work. I don't want to hypothesize to that  
12 degree.

13 Q But you haven't done that work?

14 A I haven't -- I haven't -- at this point, I  
15 do not memorize an answer to your question, no. 14:43:10

16 Q And you can't recall having done that  
17 analysis for purposes of this report in this case?

18 A For purposes of this report, I believe the  
19 FTC's definition applies.

20 Q And you can't recall having done the 14:43:27  
21 analysis I just asked you about for the purposes of  
22 your report in this case?

23 A Go back.

24 What is -- what is the analysis you  
25 claim -- what is the analysis you think I did or 14:43:37

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1 didn't do? 14:43:41

2 Q The definition that the FTC uses of  
3 "sneaking," that you cite in your report, only  
4 contains examples related to consumer shopping  
5 online. 14:43:56

6 I asked you whether you are aware of the  
7 FTC applying that definition outside of the  
8 consumer-shopping context, and you said you didn't  
9 know.

10 What I'm asking you is: If, when you go 14:44:09  
11 look at the materials you cited from the FTC, you  
12 discover that, in fact, there are no examples  
13 outside of the context of consumer online shopping,  
14 would you still contend that the FTC's definition  
15 applies to your analysis in this case? 14:44:29

16 A I don't know. It depends on what I would  
17 have read.

18 Q But I'm talking about an absence of  
19 information.

20 So you would have -- you wouldn't have 14:44:43  
21 seen anything?

22 A But that's not true. I wouldn't have seen  
23 hundreds of blank pages. I would have seen hundreds  
24 of blank pages with words in them, and those words  
25 would inform my opinion. 14:44:53

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1 Q Okay. So your opinion is that it is 14:44:56  
2 possible that the FTC's definition of "dark  
3 patterns" would apply to your analysis in this case  
4 even if the FTC never discussed examples outside the  
5 context of consumer shopping? 14:45:13

6 A Ever in that document discussed examples  
7 outside. Yes.

8 Q Let's look back at "A Hacker's Mind."  
9 So in your report, on page 6, paragraph  
10 14, you state that your book, "A Hacker's Mind," 14:45:42  
11 discusses dark patterns.

12 And on -- let's look at Tab 10 -- look at  
13 Exhibit 12, Tab 10.

14 A Not here yet. All right. I have to go  
15 back and refresh. We now know that. 14:46:08

16 (Exhibit 12 was marked for  
17 identification by the court reporter.)

18 THE WITNESS: Scroll down. Exhibit 12,  
19 Tab 10.

20 Yes, I read it. 14:46:31

21 BY MS. AGNOLUCCI:

22 Q Is -- is Exhibit 12 another excerpt of  
23 your book, "A Hacker's Mind"?

24 A It looks like it. I have the book there,  
25 if you want to confirm it. 14:46:40

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1 Q In the highlighted section, you see where 14:46:43  
2 it says (as read): "In 2019, Senators Warner and  
3 Fischer introduced legislation banning dark  
4 patterns. It didn't pass. But if a future version  
5 does, the sponsors had better get their definition 14:46:54  
6 right, because that definition itself will be  
7 subject to all sorts of hacks, as programmers and  
8 apps that use dark patterns to hack us try to get  
9 around the rules."

10 Did you write that? 14:47:08

11 A I did.

12 Q You write that the sponsors better get  
13 their definition right.

14 What did you mean by that?

15 A That, in this case, they need a legal 14:47:16  
16 definition, very precise, because what is in and out  
17 matters a lot in terms of a regulation; and that, in  
18 the future, when someone reads what the law is, they  
19 will look for loopholes. They will look for ways to  
20 do the same thing while technically following the 14:47:38  
21 letters of the regulation.

22 It's a very precise statement about law  
23 and loopholes, which I call "hacking," which is a  
24 theme of the book.

25 Q What's the definition -- what's the -- 14:47:56



1 strike that. 14:47:59

2 What's the difference between your  
3 eight-page definition of "dark patterns" and a legal  
4 definition?

5 A Legal definition is proscriptive. It will 14:48:10  
6 list things that you can't do or maybe things you  
7 can do, but primarily it's things you can't do, and  
8 that definition will be used by prosecutors in  
9 courts to determine if someone who is being charged  
10 with -- with breaking the rule did or did not. 14:48:37

11 So there's a precision that's necessary in  
12 rule writing that's just very different than any  
13 other type of writing. And, again, that is really a  
14 theme of the book.

15 Q Why is that precision important? 14:48:58

16 A Because people will read the rule as  
17 written and then do their best to get around it,  
18 because that's what people do.

19 Q Do you think your eight-page definition of  
20 "dark patterns" is sufficiently precise? 14:49:14

21 THE WITNESS: Ian, we're not hearing you.  
22 You're on mute.

23 MR. CROSBY: Sorry.

24 Object to the form of the question.

25 THE WITNESS: It's probably true for the 14:49:28

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1 entire time. 14:49:29

2 No, I don't think my -- what I wrote in my  
3 document is suitable for a -- a law.

4 BY MS. AGNOLUCCI:

5 Q But you think it's suitable to determine 14:49:48  
6 whether or not a company's actions constitute a dark  
7 pattern in the context of a lawsuit?

8 A Yeah, I don't think I'm drawing  
9 conclusions about that -- I mean legal conclusions.  
10 I am stating what I think is true based on my 14:50:00  
11 expertise, but I feel like what I wrote is going to  
12 be given to a Court that will make the -- that  
13 decision.

14 And I was definitely not writing a rule  
15 that will be followed going forward. 14:50:18

16 Q How do you expect a Court to make that  
17 decision without the type of precise and specific  
18 definition you advocate for in your book?

19 A Courts do that all the time. I don't  
20 think that that's a hindrance. 14:50:38

21 I know if we were having a case about a  
22 chair, we would not have a precise legal definition  
23 of a chair. There would be chairs in the case.  
24 There might be things that are stools and benches  
25 that some people think are chairs and not, and the 14:50:54

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1 Court would figure it out. 14:50:57

2 To me, this is what courts do, so I don't  
3 see this as a hindrance in general; that without a  
4 precise legal definition, the Court throws up its  
5 hands and says, "We can't do anything." They figure 14:51:10  
6 out stuff all the time. And sometimes definitions  
7 come out of case law.

8 It doesn't feel like a problem in the same  
9 way that a proscriptive regulation would be.

10 Q Is there a legal definition of "dark 14:51:33  
11 patterns" today?

12 A I don't know.

13 So the question I think you're asking is  
14 that EU document have the force of law? I don't  
15 know. 14:51:47

16 Does the FTC document have the force of  
17 law? I don't know.

18 There have been cases and -- and fines  
19 that involved dark patterns. So there is case law.  
20 Some of it might have settled. I don't know. 14:52:01

21 So I know this stuff has made its way into  
22 courts and legal documents, but to answer your  
23 question, I don't know.

24 Q What was wrong with the definition that  
25 Senators Warner and Fischer introduced in 2019? 14:52:27

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1 A I don't know in particular. I don't have 14:52:33  
2 anything wrong.

3 In the book, I make -- I'm ending -- I  
4 think I'm ending the chapter on that. I'm just  
5 ending it to remind the reader that any set of rules 14:52:43  
6 will be hacked and that defining your sets of rules  
7 is important.

8 So what I'm saying in that book is really  
9 a general statement. I'm not talking about the  
10 particular piece of legislation. 14:52:59

11 Q Do you have, in your mind, a ideal  
12 proscriptive legal definition of "dark patterns"?

13 A I have never been asked to produce one,  
14 no.

15 Q Can you think of one now? 14:53:19

16 A The lesson in my book is never do that  
17 stuff off the top of your head live. Always  
18 consider it. So no.

19 Q And you've never considered it?

20 A Not enough to -- to have a definition that 14:53:35  
21 I think would be suitable.

22 It would be a fun problem to work on.

23 Q Can whether something is a dark pattern be  
24 empirically tested?

25 A I don't know what you mean by that. 14:54:07

1 It is not something you measure, like 14:54:08

2 height or weight.

3 So what do you mean by "empirically  
4 tested"? You mean -- do you mean compared to a  
5 standard? Does that count?

14:54:15

6 Q I'm asking you whether there could be a  
7 test to determine whether something is a dark  
8 pattern.

9 A Whether there could possibly be a test?

10 Yes.

14:54:31

11 Q Like what?

12 MR. CROSBY: Object to the form.

13 THE WITNESS: I don't know.

14 BY MS. AGNOLUCCI:

15 Q Can you think of, as you sit here, any  
16 appropriate test to determine whether something is a  
17 dark pattern?

14:54:43

18 A That is something I would like -- that is  
19 something I would research before I answered.

20 Q Let's talk about Google's alleged use of  
21 dark patterns.

14:55:12

22 Turning to page 80 of your report, section  
23 9.4, you include a section titled "Google Uses Dark  
24 Patterns," correct?

25 A Yes.

14:55:31

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1 Q And in the first paragraph of this 14:55:37  
2 section, you state (as read): "As previously  
3 defined in 6.3, dark patterns are user interface  
4 designs that serve to manipulate users into making  
5 choices that are contrary to their own interests." 14:55:49

6 Do you see --

7 A Yes.

8 Q -- that?

9 A Yes.

10 Q How did you choose which definition of 14:55:57  
11 "dark patterns" to apply here?

12 A I don't remember.

13 Q You also state here, quote: It is helpful  
14 to consider the broader range of Google controls.

15 Are you referring to Google products and 14:56:17  
16 services beyond WAA and sWAA here?

17 A I am.

18 Q What are you referring to?

19 A I'm referring to the controls in the  
20 following subsequent paragraphs, from 280 to the end 14:56:31  
21 of the section.

22 Q Did you -- were you asked to provide an  
23 opinion on those other controls in this case?

24 A I was not.

25 Q And you told me earlier that paragraph 14:56:46

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1 three of your report, which refers to WAA and sWAA, 14:56:51  
2 encapsulates all of the controls you are opining on  
3 in this matter, correct?

4 A That is correct.

5 Q So you did not look at the disclosures or 14:57:06  
6 products at issue in paragraphs 280, 282, 283 to  
7 -84, 289, 290, and 291?

8 A That is correct. I just summarize other  
9 people's examinations.

10 Q And those products and disclosures are not 14:57:30  
11 part of your materials considered?

12 A I read the documents that I referenced. I  
13 did not go further than that.

14 Q In other words, you read the study by the  
15 Norwegian Consumer Council, you read the authorities 14:57:48  
16 cited in section 9.4, but nothing more?

17 A Yes.

18 Q Would you agree that none of the summaries  
19 or observations or investigations in these two pages  
20 of section 9.4 pertain to the WAA and sWAA settings? 14:58:19

21 A At first glance, no, but they might, and  
22 I'm not aware -- I'm not aware of that in this  
23 reading.

24 Q And, actually, I'm going to re-ask my  
25 question because it's not limited to two pages; 14:59:00

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1       rather, your statements about Google's general use       14:59:03  
2       of dark patterns go from page 80 to 85 of your  
3       report.

4               Would you agree that the discussion at  
5       pages 80 to 85 of your report does not pertain to       14:59:15  
6       the sWAA and WAA settings at issue in this case?

7               MR. CROSBY: Object to the form of the  
8       question.

9               THE WITNESS: The paragraphs are not about  
10       the WAA and sWAA settings. They are about the       14:59:28  
11       company.

12       BY MS. AGNOLUCCI:

13              Q       In paragraph 250, you talk about "GDPR  
14       popups."

15               You didn't consider the actual popups       14:59:49  
16       discussed, did you?

17               MR. CROSBY: Object to the form of the  
18       question.

19               THE WITNESS: Where do you see the popups?  
20       I'm in paragraph 250.       15:00:00

21               MS. AGNOLUCCI: I'm sorry. I think I -- I  
22       meant 280.

23               THE WITNESS: Okay. I see -- I see the  
24       word "popup."

25               No, the -- the -- I don't -- I'm sorry. I       15:00:31

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1 don't know what Google's GDPR popup says. So I 15:00:36  
2 don't know if they mention WAA or sWAA.  
3 BY MS. AGNOLUCCI:  
4 Q You didn't look at the GDPR popup or  
5 include it in your materials considered, correct? 15:00:47  
6 A I did not.  
7 Q And paragraph 284 discusses a Norwegian  
8 Consumer Council study that appears to relate to  
9 Chrome.  
10 Is whether Chrome is a dark pattern part 15:01:12  
11 of your opinion in this case?  
12 MR. CROSBY: Object to the form of the  
13 question.  
14 THE WITNESS: It's part of my report, and  
15 this section is included to demonstrate that 15:01:23  
16 Google's use of dark patterns in this case is not  
17 anomalous. I do not know if that means it is part  
18 of my opinion or not.  
19 BY MS. AGNOLUCCI:  
20 Q Did you look at the links that the privacy 15:01:39  
21 dashboard testers navigated through in the Norwegian  
22 Consumer Council matter?  
23 A I did not.  
24 Q For paragraph 281, you talk about ad  
25 personalization settings. 15:02:03

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1 Did you look at the ad personalization 15:02:06  
2 settings that were at issue in the Norwegian  
3 investigation?

4 A I did not.

5 Q In other words, the examples we've been 15:02:16  
6 discussing in section 9.4 are examples about others'  
7 conclusions and opinions about certain Google  
8 settings and disclosures, correct?

9 A Yes. I'm summarizing other organizations'  
10 conclusions about Google and dark patterns. 15:02:38

11 Q The Norwegian Consumer Council performed a  
12 series of tests to reach its conclusions, correct?

13 A I believe that is correct.

14 I think I say that somewhere, don't I?

15 Q Yes. 15:03:06

16 A Can you tell me where, so I can see it?

17 Yeah, okay. I see it in paragraph 281.

18 Testers have to navigate.

19 So, in part, yes, Norwegian Consumer  
20 Council did tests. 15:03:17

21 Q You did not conduct any such user tests  
22 for your analysis of WAA and sWAA, correct?

23 A I did not.

24 Q In fact, you didn't conduct any empirical  
25 testing to determine how users received the sWAA and 15:03:36

1 WAA settings, correct? 15:03:39

2 A That is correct. I did not opine on any

3 users in particular.

4 Q Or in general?

5 A Or in general. 15:03:50

6 Q Paragraphs 173 to -74 of your report talk

7 about an FTC report on dark patterns, which

8 described deceptive design elements in e-commerce

9 interfaces.

10 Do you see that? 15:04:16

11 A Yes.

12 Q And in paragraph 174, you list a number of

13 examples about consumer harms caused by a

14 rent-to-own payment plan company and online lending

15 corporation, a credit monitoring company, and a tax 15:04:33

16 filing service lying to people about prices or terms

17 of a paid deal, correct?

18 A Yes.

19 Q None of these examples are about WAA and

20 sWAA settings, correct? 15:04:50

21 A Yes, that's correct.

22 Q And they're not about Google Analytics for

23 Firebase?

24 A That's what I was checking. I don't think

25 so. 15:05:07

1 Q And they're not about any alleged harm to 15:05:09  
2 users of WAA, sWAA, or Google Analytics?

3 A So that -- so I wondered about your  
4 phrasing, because, almost certainly, many of the  
5 users who were harmed by these are using some site 15:05:25  
6 that uses WAA or sWAA. So they are users of WAA and  
7 sWAA because, as we determined a couple of hours  
8 ago, you can't avoid using it. So those humans were  
9 using WAA and sWAA, but not in conjunction with  
10 these actions, or maybe in conjunction with these 15:05:47  
11 actions, not in conjunction with the -- with what  
12 the FTC was complaining about.

13 Q I want to direct you to paragraphs 161 to  
14 166, where we're talking about Brignull's definition  
15 and categories of "dark patterns." 15:06:13

16 A Mm-hmm.

17 Q Brignull refers to human behavior in his  
18 definition of "dark patterns."

19 Do you agree with that?

20 A Can you tell me where? 15:06:37

21 Q I can search for it. I just saw it.

22 At the top of page 46. So --

23 A I wasn't even there. I see it. Yes.

24 Q -- "Colin Gray has extended the" --

25 Okay. So part of his definition is 15:07:12

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1 "instances where designers use their knowledge of 15:07:14  
2 human behavior."

3 Do you see that?

4 A Well, that's Colin Gray's quote, but I do  
5 see it. 15:07:23

6 Q And it's part of your definition, you  
7 said, of "dark patterns," correct?

8 MR. CROSBY: Object to the form of the  
9 question.

10 THE WITNESS: Yeah, it's part of the 15:07:29  
11 section where I discuss what dark patterns are.

12 BY MS. AGNOLUCCI:

13 Q What human behaviors are referred to here?

14 A I think it's a collection of human  
15 behaviors: checking a box, clicking on a thing, 15:07:47  
16 buying a thing, moving a slider, doing something  
17 with -- with an interface.

18 Q Okay. You also said that you've taught in  
19 the area of dark patterns.

20 When you're teaching, how do you teach 15:08:11  
21 your students to recognize a dark pattern?

22 A It's similar to what I did in this report.  
23 I put up different taxonomies, and then I put up  
24 examples.

25 Q And then they are to use their judgment to 15:08:33

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1 determine whether an example fits into a taxonomy? 15:08:36

2 A Yeah, I'm not teaching people to go out  
3 and be, you know, dark pattern police officers, but,  
4 yes, I mean, I'm trying to teach them to recognize  
5 them when they see them. 15:08:53

6 Q They'll know it when they see it, I take  
7 it?

8 MR. CROSBY: Object to the form of the  
9 question.

10 THE WITNESS: You know, I'm okay with -- 15:09:01  
11 with a fuzzy definition in a class, right. There  
12 are -- I mean, I'm teaching in cybersecurity.  
13 It's -- so many things are fuzzy. There are things  
14 that are obviously dark patterns; there are things  
15 that are obviously not. There are edge cases that 15:09:14  
16 are -- that are worth discussing.

17 I mean, these people are going into a  
18 variety of policy roles in their career, and I want  
19 them to be familiar with the term and the tactics  
20 and the current policy discussions around it. 15:09:33  
21 That's really the point of my class.

22 BY MS. AGNOLUCCI:

23 Q Let's go back to paragraph 279, where you  
24 include your definition of "dark patterns."

25 Do you believe that WAA and SWAA are user 15:09:54